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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,487	02/14/2007	Jeffrey C. Andle	0401US-Biode	1785

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SALTAMAR INNOVATIONS
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SOUTH PORTLAND, ME 04106

EXAMINER	
BELLAMY, TAMIKO D	

ART UNIT	PAPER NUMBER
2856	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/597,487	ANDLE, JEFFREY C.	
	Examiner	Art Unit	
	TAMIKO D. BELLAMY	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 10-17* is/are rejected.

7)☒ Claim(s) *9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 July 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Preliminary amendment dated 7/27/06 has been received and entered. Claims 18-65 have been canceled. Claims 1-17 are currently pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-8, and 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herrmann et al. (6,543,274) in view of Yen et al. (4,513,261).

Re claims 1, 6, and 16, as depicted in figs. 1 and 4, Herrmann et al. discloses an entrapment layer (e.g., liquid traps 17) having a textured surface in contact with a fluid, and having a known volume available for entrapping the fluid. Herrmann et al. discloses LPAWD comprising an input ant output transducers (6a, 6b) electronically coupled to the respective first and second resonators (e.g., reflector banks 14). Herrmann et al. discloses measuring the density and viscosity of the fluid. Herrmann et al. lacks the detail of providing the LPAWD with an electrical transfer function characterized by at least a first resonant frequency Fs and a second resonant frequency F_A at or about 180 degrees phase shift relative to the Fs. As depicted in fig. 1 Yen et al. discloses a first resonant frequency Fs and second resonant frequency F_A at or about 180 degrees phase shift relative to the Fs (Col. 3, lines 45-68). Therefore, to modify Herrmann et al. by employing an electrical transfer function characterized by a second resonant frequency that is about 180 degrees phase shift relative to the first

resonant frequency would have been obvious to one of ordinary skill in the art at the time of the invention since Yen et al. teaches acoustic filter having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Herrmann et al. and Yen et al. since Herrmann et al. states that his invention is applicable to determining density of a fluid including an two-port resonator/filter and Yen et al. is directed to acoustic filter.

Re claim 2, Herrmann et al. discloses calculating the density of the fluid.

Re claim 3, as depicted in fig. 1, Herrmann et al. discloses a textured surface (e.g. liquid traps 17) cover an approximately equal area of each of the resonators (e.g., reflector banks 14).

Re claim 4, Herrmann et al. discloses a calibration function to account for an approximated viscosity of the fluid (Col. 6, lines 24-32).

Re claim 5, as depicted in fig. 5, Herrmann et al. discloses a two-port resonator. Herrmann et al. does not discloses providing an amplifier coupled between the input and output transducers. Yen et al. discloses a phase shift circuit (24), which inherently includes an amplifier (Col. 5, line 4). Therefore, to modify Herrmann et al. by employing an amplifier would have been obvious to one of ordinary skill in the art at the time of the invention since Yen et al. teaches acoustic filter having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Herrmann et al. and Yen et al. since Herrmann et al. states that his invention is applicable to determining density of a fluid including an two-port resonator/filter and Yen et al. is directed to acoustic filter.

Re claim 7, Herrmann et al. discloses an input signal is controlled to produce a predetermined shear rate under which viscosity is measured.

Re claim 8, Herrmann et al. discloses a shear rate that is controlled by controlling the input electrical signal at an energy level to produce a desired displacement of the entrapment layer (e.g., liquid traps 17).

Re claim 10, Herrmann et al. discloses measuring the power difference between the input and output transducers (Col. 6, lines 24-51).

Re claim 11, Herrmann et al. discloses measuring a second resonant frequency (6, lines 12-24).

Re claim 12, as depicted in fig. 1, Herrmann et al. discloses a textured surface (e.g. liquid traps 17) cover an approximately equal area of each of the resonators (e.g., reflector banks 14).

Re claim 13, Herrmann et al. discloses measuring the viscosity by utilizing the measured density of the product.

Re claim 14, Herrmann et al. discloses using the measured viscosity to compensate for viscosity effects in the step of measuring density (Col. 6, lines 24-32).

Re claims 15 and 17, Herrmann et al. discloses measuring two frequencies (f1 and f2). Herrmann et al. discloses does not specifically discloses measuring the insertion loss between the input and output resonator. As depicted in fig. 1, Yen et al. discloses measuring the insertion loss between the input and output resonator. Therefore, to modify Herrmann et al. by employing power insertion loss between the input and output transducer would have been obvious to one of ordinary skill in the art at the time of the invention since Yen et al. teaches acoustic filter having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Herrmann et al. and Yen et al. since Herrmann et al. states that his

invention is applicable to determining density of a fluid including an two-port resonator/filter and Yen et al. is directed to acoustic filter.

Allowable Subject Matter

4. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter:

Re claim 9, Herrmann et al. teaches measuring the liquid density based on the output of a low-pass filter (33); and measures the viscosity of the liquid using the ascertained density, from the shift in frequency of the sensor. Herrmann et al. does not teach the acoustic wave amplitude is determined by a device constant, and energy level being geometric mean power levels measured by the input and output transducers. Yen et al not teach the acoustic wave amplitude is determined by a device constant, and energy level being geometric mean power levels measured by the input and output transducers.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAMIKO D. BELLAMY whose telephone number is (571)272-2190. The examiner can normally be reached on Monday - Friday 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tamiko Bellamy
/TB/
September 2, 2008
/Hezron Williams/
Supervisory Patent Examiner, Art Unit 2856